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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,881	07/12/2001	Walid Ahmed	23-3-2-1	1989

7590 12/21/2004
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EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,881

Applicant(s)

AHMED ET AL.

Examiner

Lawrence B Williams

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,13,14 and 16 is/are rejected.
- 7) ☒ Claim(s) 3,5-12,15 and 17-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - a.) Applicant has included Figs. 3a-b, and 5a-b in the drawing set but fails to adequately provide a description of all drawings.Appropriate correction is required.
2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claim 3 is objected to because of the following informalities: Examiner suggests applicant define the variable x , such as where x is an integer.
 4. Claim 4 is objected to because of the following informalities: Examiner suggests applicant define the variable k , such as where k is an integer.
- Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claim 18 recites the limitation "the first set of metrics" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1, 2, 4, 13, 14, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Bradley et al. (US Patent 6,483,885 B1).

(1) With regard to claim 1, Bradley et al. discloses in Figs. 1-3, a symbol synchronizer (18) comprising: (a) means for deriving a control signal (26) from received samples using a distance metric function (30); and (b) timing adjustment (28) means for producing a timing signal based on the control signal (col. 4, lines 14-36).

(2) With regard to claim 2, Bradley et al. also discloses wherein the distance metric function is Euclidean (col. 4, lines 39-46).

(3) With regard to claim 4, Bradley et al. also discloses wherein the distance metric function is non-Euclidean (lines 39-46).

(4) With regard to claim 13, Bradley et al. also discloses a method for synchronizing a communication channel, comprising the steps of: (a) receiving samples; (b) deriving a control signal from the received samples using a distance metric function; and (c) producing a timing signal based on the control signal ((col. 4, lines 14-36).

(5) With regard to claim 14, Bradley et al. also discloses wherein the distance metric function is Euclidean (col. 4, lines 39-46).

(6) With regard to claim 4, Bradley et al. also discloses wherein the distance metric function is non-Euclidean (lines 39-46).

Allowable Subject Matter

9. Claims 3, 5-12, 15, 17-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

The instant application discloses a symbol synchronizer. Prior art records teach symbol synchronizers but fail to teach “wherein the distance metric function, denoted as $\rho(x)$, is defined as $\rho(x) = x^2$ ” as taught in claims 3 and 15, nor does the prior teach “wherein the distance metric

function, denoted as $\rho(x)$, is defined as $\rho(x) = \begin{cases} x^2 & \text{for } -k < x < k \\ k^2 & \text{otherwise} \end{cases}$ ” as taught in claims 5 and

17. The prior art also fails to teach “wherein the deriving means further comprising a first distance metric computation means for computing a first set of metrics from first N consecutive received samples using the distance metric function with respect to all possible symbols” as taught in claim 6. The prior again fails to teach, “wherein step (b) further comprises the step of

computing the first set of metrics from first N consecutive received samples using the distance metric function with respect to all possible signal constellations” as taught in claim 18.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Jacobsmeyer discloses in US Patent 5,541,955 an Adaptive Data Rate Modem.

b.) Pawate et al. discloses in US Patent 5,749,064 a Method and System for Time Scale Modification Utilizing Feature Vectors About Zero Crossing Points.

c.) Ashley et al. discloses in US Patent 6,657,802 B1 Phase Assisted Synchronization Detector.

d.) Yasuda et al. discloses in US Patent 4,578,800 Synchronization Circuit For a Viterbi Decoder.

e.) Bottomley et al. discloses in US Patent 6,335,954 B1 Method And Apparatus For Joint Synchronization Of Multiple Receive Channels.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2634

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
November 27, 2004



AMANDA T. LE
PRIMARY EXAMINER